CLAIMS:

1. A biomagnetic field measuring method comprising:

a first step of measuring a temporal change of a component of a biomagnetic field generated from a living body by using a plurality of fluxmeters disposed externally of said living body and each including a superconducting quantum interference device (SQUID), said magnetic field component being in a first direction which is vertical to the surface of said living body;

a second step of determining a temporal change of a value proportional to a root of square sum of differential value of said first-direction magnetic field component in second and third directions which cross said first direction;

a third step of integrating said temporal change of the value obtained in said second step over a predetermined interval to determine an integral value; and

a fourth step of displaying said integral value obtained in said third step.

2. A biomagnetic field measuring method comprising:

a first step of measuring temporal changes of components of a biomagnetic field generated from a living body by using a plurality of fluxmeters disposed externally of said living body and each including a superconducting quantum interference device (SQUID), said magnetic field components being in first and second directions which are parallel to the surface of said living body;

a second step of determining a temporal change of a value proportional to a root of square sum of said magnetic field components in first and second directions;

a third step of integrating said temporal change of the value obtained in said second step over a predetermined interval to determine an integral value; and

a fourth step of displaying said integral value obtained in said third step.

3. A biomagnetic field measuring method according to claim 1 or 2, wherein in said fourth step, the integral values are used to display an isointegral map for connecting points at which said integral values are equal to each other.

4. A biomagnetic field measuring method according to claim 1 or 2, wherein integrating said temporal change of the value obtained in said second step over a predetermined interval to determine an integral value in said third step is carried out over a plurality of predetermined intervals to determine a plurality of integral values and computation for determining any of the ratio, the sum inclusive of isoweight or the difference between said plurality of integral values is carried out.

5. A biomagnetic field measuring method comprising:

a first step of measuring a component of a biomagnetic field generated from a living body by using a plurality of fluxmeters disposed externally of said living body and each including a superconducting quantum interference device (SQUID), said magnetic field component

being in a first direction which is vertical to the surface of said living body;

a second step of determining a value proportional to a root of square sum of differential value of said first-direction magnetic field component in second and third directions which cross said first direction; and

a third step of displaying said value obtained in said second step.

6. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a temporal change of a component of the biomagnetic field in a first direction which is vertical to the surface of said living body;

operation processing means for performing computation for determining a temporal change of a value proportional to a root of square sum of change rates of said first-direction magnetic field component in second and third directions which cross said first direction and computation for integrating said temporal change of the value over a predetermined interval to determine an integral value; and

display means for displaying said integral value.

7. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect temporal changes of components of the biomagnetic field in first and second directions which are parallel to the surface of said living body;

operation processing means for performing computation for determining a temporal change of a value proportional to a root of square sum of said first-and second-direction magnetic field components and computation for integrating said temporal change of the value over a predetermined interval to determine an integral value; and

display means for displaying said integral value.

8. A biomagnetic field measuring apparatus according to claim 6 or 7, wherein an isointegral map for connecting points at which the integral values are equal to each other is displayed on said display means.

9. A biomagnetic field measuring apparatus according to claim 6 or 7, wherein said operation processing means performs said computation for determining the integral value over a plurality of predetermined intervals to determine a plurality of integral values and performs computation for determining the ratio, the sum inclusive of isoweight or the difference between said plurality of integral values.

10. A biomagnetic field measuring apparatus according to claim 6 or 7, wherein said plurality of fluxmeters are arranged on the outer surface of said living body at equal intervals.

11. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a magnetic field component vertical to the surface of said living body, where a plane parallel to the living body surface corresponds to x, y plane of the Cartesian coordinate system and a direction vertical to said living body surface corresponds to z axis of the Cartesian coordinate system;

operation processing means for determining a value proportional to a root of square sum of differential value in x and y directions of said magnetic field component; and

display means for displaying an isomagnetic field magnitude curve for connecting points at which the above values are equal to each other.

12. A biomagnetic field measuring apparatus according to claim 11, wherein said operation processing means uses, in computation for solving the inverse problem for presuming the position and magnitude of a magnetic field source within said living body, the number of peaks and

position data of said peaks in said isomagnetic field magnitude curve as initial values of the number of magnetic field sources and positions of said magnetic field sources.

13. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a component of the biomagnetic field in a first direction which is vertical to the surface of said living body;

operation processing means for performing computation for determining a value proportional to a root of square sum of change rates of said first-direction magnetic field component in second and third directions which cross said first direction; and

display means for displaying said value.

14. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a component of the biomagnetic field in a first direction which is vertical to the surface of said living body;

operation processing means for performing computation for determining a root of square sum of differential value of said first-direction magnetic field component in second and third directions which cross said first direction; and

display means for displaying said root value.

15. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a magnetic field component of the biomagnetic field in a first direction which is vertical to the surface of said living body;

operation processing means for performing computation for determining a root of square sum of differential value of said first-direction magnetic field component in second and third directions which cross said first direction; and

display means for displaying a value proportional to said root and imaging and displaying magnitude distribution of the biomagnetic field within a time zone during which the ventricle of the heart of said living body depolarizes and within a time zone during which repolarization of said ventricle proceeds.

16. A biomagnetic field measuring method comprising:

a first step of measuring a component of a biomagnetic field generated from a living body by using a plurality of fluxmeters each including a superconducting quantum interference device (SQUID), said magnetic field component being in a first direction which is vertical to the surface of said living body;

a second step of determining a component of the biomagnetic field in a second direction which is orthogonal to said first direction from a differential value in said second direction of said first-direction magnetic field component;

a third step of determining a component of the magnetic field in a third direction which is orthogonal to said first and second directions from a change rate in said third direction of said first-direction magnetic field component; and

a fourth step of determining a value proportional to a root of square sum of said magnetic field components in said second and third directions.

17. A biomagnetic field measuring method according to claim 16 further comprising a fifth step of integrating a temporal change of said value obtained in said fourth step over a predetermined interval to determine an integral value,

wherein in said fourth step, said integral value obtained in said fifth step is displayed.

18. A biomagnetic field measuring method comprising:

a first step of measuring a normal component of a biomagnetic field generated from a living body by using a plurality of fluxmeters disposed externally of said living body and each including a superconducting quantum interference device (SQUID), said normal component being vertical to the surface of said living body;

a second step of presuming two tangential components from said normal component and determining a root of square sum of said two tangential components;

a third step of integrating a value proportional to said root of square sum to determine an integral value; and a fourth step of displaying positional distribution of the integral values.

19. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a z-direction component of said biomagnetic field, where a plane parallel to the surface of said living body corresponds to x, y plane of the Cartesian coordinate system and a direction vertical to the living body surface corresponds to z axis of the Cartesian coordinate system;

operation processing means for determining a value proportional to a root of

$$B_{xy} = \{(\partial B_z(x, y)/\partial x)^2 + (\partial B_r(x, y)/\partial y)^2\}$$

from said z-direction component; and

display means for displaying an isomagnetic field magnitude curve for connecting points at which the above values are equal to each other.

20. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a z-direction component of said biomagnetic field, where a plane parallel to the surface of said living body corresponds to x, y plane of the Cartesian coordinate system and a direction vertical to the living body surface corresponds to z axis of the Cartesian coordinate system;

operation processing means for determining a value proportional to a root of

$$B_{xy} = \{(\partial B_z(x, y)/\partial_x)^2 + (\partial B_z(x, y)/\partial_y)^2\}$$

from said z-direction component; and

display means for displaying said value proportional to the root.

21. A biomagnetic field measuring apparatus according to claim 20, wherein the magnitude distribution of the

biomagnetic field within a time zone during which the ventricle of the heart of said living body depolarizes and within a time zone during which repolarization of said ventricle proceeds is imaged and displayed on said display means.

22. A biomagnetic field measuring apparatus comprising a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of fluxmeters being operative to detect a normal component of the biomagnetic field vertical to the surface of said living body, and display means for displaying distribution of said biomagnetic field,

wherein said display means displays distribution of said biomagnetic field determined from two tangential components which are presumed from said normal component.

23. A biomagnetic field measuring apparatus according to claim 22, wherein said display means displays distribution of a biomagnetic field generated from the heart of said living body.

24. A biomagnetic field measuring apparatus comprising:

a plurality of fluxmeters disposed externally of a living body and each including a superconducting quantum interference device (SQUID) for detecting a biomagnetic field generated from said living body, said plurality of

fluxmeters being operative to detect a component of said biomagnetic field in a first direction which is vertical to the surface of said living body;

operation processing means for determining components of said biomagnetic field in second and third directions which cross said first direction from said first-direction magnetic field component; and

display means for displaying distribution of said biomagnetic field within a time zone during which a QRS wave of magnetocardiogram of said living body appears and within a time zone during which a T wave of said magnetocardiogram appears.

25. A biomagnetic field measuring apparatus according to claim 24, wherein said display means displays distribution of the difference between the biomagnetic field within the time zone during which a QRS wave of said magnetocardiogram appears and the biomagnetic field within the time zone during which a T wave of said magnetocardiogram appears.